

NATIVE HOSTS OF *PRATYLENCHUS COFFEA* IN FLORIDA.

R. N. Inserra¹, J. H. O'Bannon¹, and L. W. Duncan²

INTRODUCTION

The nematode, *Pratylenchus coffeae* (Zimmerman) Filipjev and Schuurmans Stekhoven is a tropical species that attacks several agronomic and horticultural crops (1,7). *Pratylenchus coffeae* is a regulated pest in Florida because of the severity of damage it inflicts on citrus (5,6). A quarantine on the movement of this nematode through citrus nursery certification and site approval programs has minimized the spread of this nematode in citrus orchards.

Pratylenchus coffeae infects weeds that are common in citrus groves such as *Merremia dissecta* (Jacq.) Hallier f. (miniature wood-rose), *Momordica charantia* L. (balsam pear), and *Schinus terebinthifolius* Raddi (Brazilian pepper), and also ornamentals such as *Chamaedorea elegans* Mart. (parlor palm), *Codiaeum variegatum* (L.) Blume (croton), *Musa* spp. (banana), and *Syngonium podophyllum* (nephthytis) (4). Bureau of Nematology records list *P. coffeae* on other weeds such as *Cenchrus echinatus* L. (sandspur), *Eupatorium aromaticum* L. (wild horehound), *Hypericum* sp. (St. John's wort), *Panicum* spp. (panic grass), and *Solanum nigrum* L. (black nightshade) from some counties in central Florida. However, it is not known if *P. coffeae* occurs in uncultivated soil in Florida.

The following data relating to *P. coffeae* were obtained during surveys conducted by the Bureau of Nematology to study the geographical distribution of *Tylenchulus palustris* Inserra et al. in Florida (2).

HOST AND NEMATODE IDENTIFICATION

To determine the presence of *P. coffeae* on native hosts, roots from collected plants were incubated moist in jars for 24 hours, after which the roots were rinsed to collect nematodes, which were then mounted in water agar (3).

HOSTS

In this survey two hosts were found. Native hosts of *P. coffeae* were: *Aster elliotii* Torr. & Gray. (aster, from bank of Ichetucknee river, Columbia County) and *Fraxinus caroliniana* Mill. (pop ash, from swamp in Aucilla Wildlife Management Area, Taylor County) (Figs. 1,2).

The population density of *P. coffeae* on aster and pop ash were smaller than those reported on citrus (6) (17 and 4 nematodes/g fresh root, respectively, compared with more than 1,000 nematodes/g citrus fresh roots). Morphologically, differences were also observed between the native populations of *P. coffeae* (Fig. 3) and those from citrus (Fig. 4). Body size of the *P. coffeae* native populations was smaller than that of *P. coffeae* from citrus. Female body length ranged from 495-633 μ m for the aster and from 491-582 μ m for the pop ash populations compared with 568-907 μ m for a citrus population. Preliminary greenhouse studies have indicated that these *P. coffeae* populations have different host preference. Studies still in progress have shown that the *P. coffeae* from pop ash are unable to infect rough lemon (*Citrus limon* (L.) Burm. f.) seedlings that were exposed to initial densities of 4 nematodes/cc soil for 7 months.

Pratylenchus coffeae populations are occasionally detected on ornamental plants imported into Florida from Central America. The host status of citrus to these populations is unknown.

SURVEY AND DETECTION

In surveying uncultivated areas for commercial citrus nurseries, weeds such as miniature wood-rose, balsam pear and Brazilian pepper, and native plants such as aster and pop ash should be selected as indicator plants of potential *P. coffeae* infestations. Soil and roots from these plants should be collected for nematode analysis. It is always necessary to include roots with the soil sample because *P. coffeae* is a migratory endoparasite and its densities may be undetectable in the soil but conspicuous in the roots. If the area has a history of citrus cultivation, soil and roots should be taken from any citrus sprout present after tree removal.

¹Nematologist and Chief of Nematology, respectively, Bureau of Nematology, P.O. Box 1269, Gainesville, FL 32602.

²Associate Professor, University of Florida, IFAS, Citrus Research & Education Center, Lake Alfred, FL 33850.



Fig. 1. *Aster elliottii* with inflorescences.



Fig. 2. *Fraxinus caroliniana* sprout.

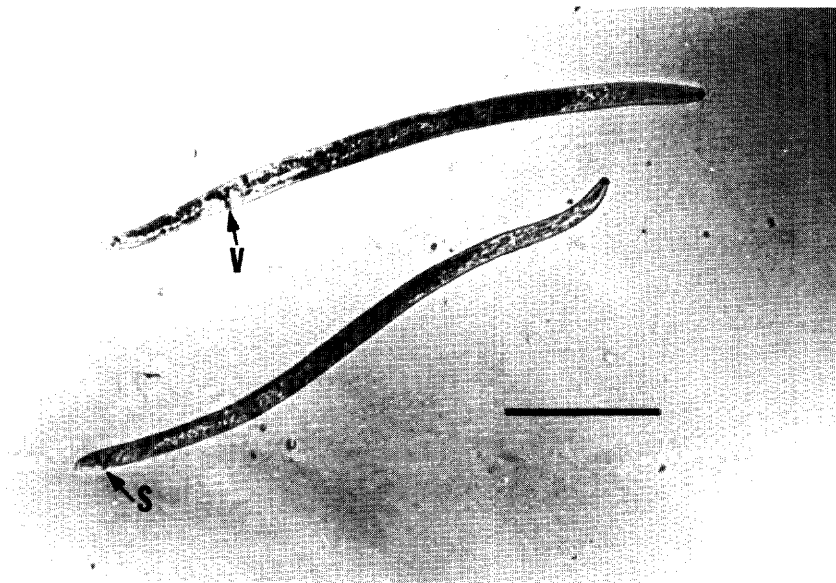


Fig. 3. Female (top) and male (bottom) of *Pratylenchus coffeae* from aster. S = spicules; V = vulva. Scale bar = 132 μ m.

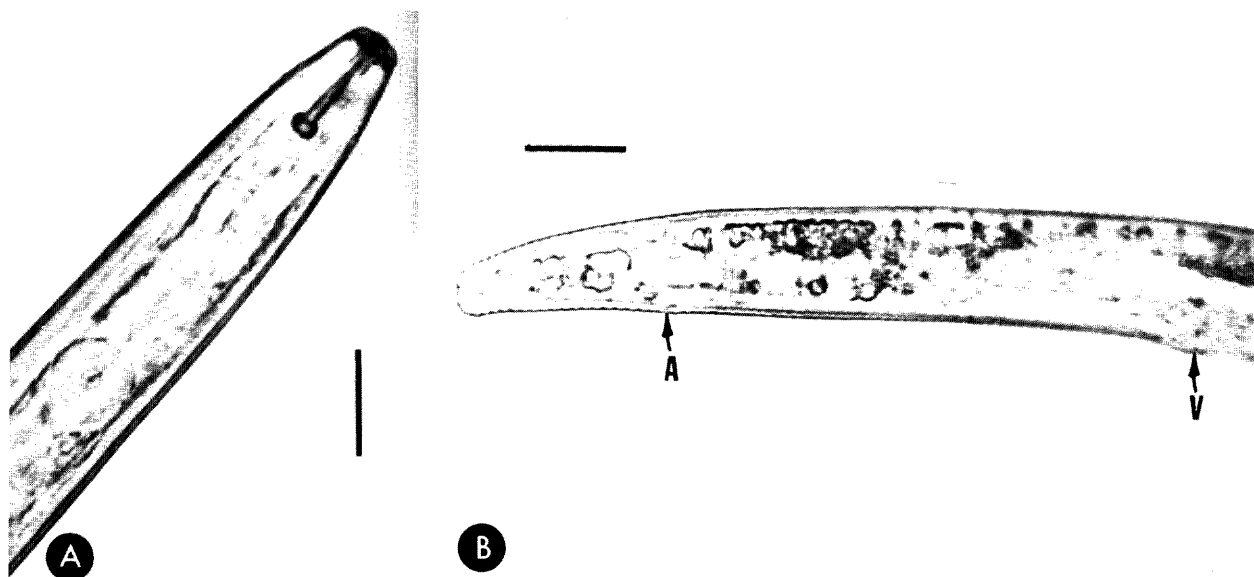


Fig. 4. Female of *Pratylenchus coffeae* from citrus. A) Anterior body. B) Posterior portion of the body with indented terminus. A = anus; V = vulva. Scale bars = 16 μ m in A and 17 μ m in B.

LITERATURE CITED:

1. Ayoub, S. M. 1960. A new host of *Pratylenchus coffeae* for the United States. *Plant Dis. Repr.* 44:755.
2. Dow, Roberta L., R. N. Inserra, R. P. Esser, and K. R. Langdon. 1990. Distribution, hosts, and morphological characteristics of *Tylenchulus palustris* in Florida and Bermuda. *J. Nematology* (Supplement) 22(4): (in press)
3. Esser, R. P. 1986. A water agar en face technique. *Proc. Helminthol. Soc. Wash.* 18:254-255.
4. Kaplan, D. T., and J. B. MacGowan. 1982. Ability of selected common weeds and ornamentals to host *Pratylenchus coffeae* *Nematropica* 12:165-170.
5. O'Bannon, J. H., and A. T. Tomerlin. 1973. Citrus tree decline caused by *Pratylenchus coffeae*. *J. Nematol.* 5:311-316.
6. Radewald, J. D., J. H. O'Bannon, and A. T. Tomerlin. 1971. Temperature effects on reproduction and pathogenicity of *Pratylenchus brachyurus* and *P. coffeae* and survival of *P. coffeae* in rough lemon roots. *J. Nematol.* 3:390-394.
7. Siddiqi, M. R. 1972. *Pratylenchus coffeae*. C.I.H. Description of plant-parasitic nematodes, Set 1, No. 6, 4 pp. St. Albans, England.